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**INTRODUCTION**

This report pertains to the facilities in the Tucson Area Indian Health Service, including the Sells Indian Hospital, Santa Rosa Clinic, San Xavier Clinic, Pisinemo Health Station, and Casa Grande Western District Office (leased).

**A. ANNUAL ENERGY MANAGEMENT DATA REPORT**

- I. Energy Consumption and Cost Data: See Appendix A.
- II. Energy Conservation Program Summary: See Appendix B.

**B. ENERGY CONSUMPTION REDUCTION GOALS**

The Tucson Area goals for energy conservation are as follows, calculated on the base year FY85:

|      |                |
|------|----------------|
| 1995 | 10 % reduction |
| 2000 | 20 % reduction |
| 2005 | 30 % reduction |

The Tucson Area energy conservation program is described in facilities policy number FMB 5.1, Energy Management/Conservation. This policy calls for monitoring of energy consumption, evaluation and analysis of trends, and measurement against energy reduction goals. Management is kept informed of the status of energy use and conservation.

For new construction, renovation, or repair of equipment and structures, the use of energy is a consideration. The use of automatic equipment such as night setback thermostats and motion or occupancy sensors is encouraged. Replacement equipment is sought which has a high energy efficiency ratio (EER). When facilities are renovated, the use of energy during normal operations is considered, and appropriate insulation and ventilation rates are used. The facilities are evaluated periodically for energy conservation opportunities.

Each facility (Sells and San Xavier) has individuals trained in recognizing energy-saving opportunities. A reminder checklist is included in the facilities policy. Facilities maintenance staff are being trained in maintenance procedures which enhance energy efficiency.

**C. ENERGY SAVINGS PERFORMANCE CONTRACTS:** No information to report.

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**D. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT FUNDING:**

Funding for energy/utilities management and conservation comes from M&I operations and project funds, and from the Energy surveys and projects fund. The amounts of FY98 funds in each account:

|                           |           |
|---------------------------|-----------|
| M&I Operations            | \$382,000 |
| M&I Projects              | \$263,000 |
| Energy Surveys & Projects | \$0       |

The only funds specifically designated for energy projects are from the energy surveys and projects fund. The M&I operations fund is for repair parts, repairs, maintenance, small contract jobs, and other daily maintenance operations. The M&I projects fund is for any other projects requested. Due to the depreciating infrastructure in buildings, equipment, utilities, paving, and fences, the projects fund cannot meet all requirements.

**E. ENERGY AND WATER SURVEYS AND AUDITS:**

**I. PRIORITIZATION SURVEY:** The initial energy management surveys were conducted in 1986 and 1993, and a portion of each Deep Look survey involved energy management. In addition, an energy study was conducted for the Sells Hospital in 1991.

The 1982 survey of San Xavier and Santa Rosa states that the two facilities were operated in an energy efficient manner and that "Energy saving retrofit projects are not cost effective when applied to energy efficient facilities." The report does state that some mechanical renovations and automatic controls would save energy. Further, the report stated the use of the incinerator and exercise of the generator at Santa Rosa caused 20% of the total energy use; both have been discontinued.

The 1982 survey of Sells says that the compound exceeds the Department of Energy goals by 13.5%. It also said that architectural renovations would not produce sufficient savings to justify the expenditure. The report recommends some mechanical renovations to save energy, and also the installation of gas meters to identify major users of LPG. Since that time, the quarters have been removed from the central LPG system and each quarters building is individually metered. The LPG system servicing the hospital has been replaced.

The findings of the 1991 Sells study recommended replacement of some equipment, reviewing equipment sizing to optimize efficiency, reviewing design parameters on outside air quantities to reduce HVAC energy requirements, and making some operational changes to reduce energy use.

The initial surveys have been conducted. Two major mechanical renovation projects at Sells and San Xavier have incorporated many of the recommendations, and another major renovation project at Sells should begin in FY99. This project will implement other conservation

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measures. Following the completion of the project, another survey may be needed to re-assess the energy conservation status.

**II COMPREHENSIVE FACILITY AUDIT:** These audits have yet to be completed. The guidelines and scope for conducting these audits have not yet been written. The audits will be conducted by Architect/Engineer contractors. The transfer of functions from Engineering Services to the Area may delay completion.

**III LEASED FACILITIES:** About 1% of the square footage utilized by IHS personnel in the Tucson Area is leased. Since all utilities are paid by the lessor, no audits or projects are planned for those facilities. The amount of leased space is expected to increase in FY99.

**F. IMPLEMENTATION OF ENERGY EFFICIENCY AND WATER CONSERVATION PROJECTS:** No information to report.

**G. SOLAR AND OTHER RENEWABLE ENERGY:** No information to report. No plan has been developed to significantly increase the use of solar power or other renewable energy sources. No renewable energy projects were implemented in FY98 and none were proposed for future projects.

**H. MINIMIZATION OF PETROLEUM-BASED FUEL USE:** The major fuels at San Xavier are natural gas and electricity; the electricity is provided from coal-fired power plants. The major fuels used at Sells are LPG and electricity. The major power sources at Santa Rosa and Pisinemo are electricity.

**I. ENERGY EFFICIENT OPERATIONS AND MAINTENANCE PROCEDURES:** Thermostats and controls are replaced with automatic time-setback models to conserve energy where feasible; the use of occupant sensors has been implemented in some rooms. Water-saving valves and toilets are replacing less efficient ones as the older ones wear out. When equipment is replaced, more efficient units are specified. The use of outdoor air is used when feasible. As lighting is replaced, more efficient lamps and ballasts are used. Maintenance staff are trained in maintenance procedures which enhance energy efficiency.

**J. ENERGY EFFICIENCY IN NEW SPACE:** No information to report.

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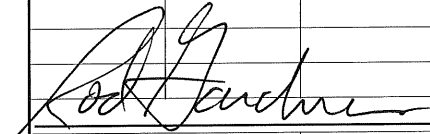
**K. PERFORMANCE EVALUATIONS:** No information to report.

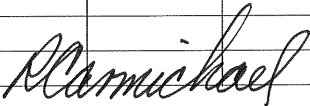
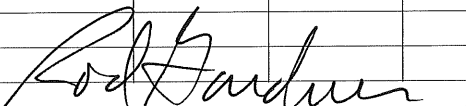
**L. INCENTIVE AWARDS:** No information to report.

**M. PROCUREMENT OF ENERGY EFFICIENT PRODUCTS:** The specifications written to replace equipment and products require all new items meet appropriate energy efficiency standards. This includes air conditioners, water heaters, lighting, and furnaces. As lamps and ballasts are replaced, energy efficient lamps (such as T-8 lamps) and electronic or magnetic ballasts are utilized. As toilets, faucets, and shower heads are replaced, the low-flow and water conserving type are used. As roofs are replaced, those with higher insulating values are used. The replacement of 15- and 20-year old furnaces and air conditioners with more efficient ones continue, using units with some of the most efficient available; continually burning pilot lights are replaced with electronic pilots.

**N. ENERGY MANAGEMENT TRAINING:** The Tucson Area has two trained energy managers. Both have attended the IHS Energy Management training conducted by Headquarters staff. Two new facilities engineers will attend energy management training when possible.

**O. ENVIRONMENTAL BENEFITS OF ENERGY MANAGEMENT ACTIVITIES:**  
No information to report.

|   |                  |                    |                         |           |            |   |
|---|------------------|--------------------|-------------------------|-----------|------------|---|
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| APPENDIX A  |                  |                    |                         |           |            |   |
| ENERGY CONSUMPTION AND COST DATA  |                  |                    |                         |           |            |   |
| I.H.S. Area:  | Tucson           | Reported Year:     | FY 1998                 |           |            |   |
| Prepared By:  | Roger Carmichael | Title:             | Area Facil Engr         |           |            |   |
| Phone:  | 520-295-2580     | Date Submitted:    | 11/2/98                 |           |            |   |
| BUILDINGS/FACILITIES  |                  |                    |                         |           |            |   |
| Energy Type   | Reporting Units  | Annual Consumption | Annual Cost (\$ x 10*3) | Unit Cost | Total MBTU |   |
| Electric  | KWH x 10*3       | 2744 kkwH          | 234                     |           | 9370       |   |
| Fuel Oil  | Gal x 10*3       | 0                  | 0                       |           | 0          |   |
| Nat. Gas  | cf x 10*4        | 676                | 5                       |           | 7.8        |   |
| LPG/Prop.   | Gal x 10*3       | 39134              | 39                      |           | 1604       |   |
| Coal  | Ton              | 0                  | 0                       |           | 0          |   |
| Purch. Stm.   | MMBTU            | 0                  | 0                       |           | 0          |   |
| Other   | MMBTU            | 0                  | 0                       |           | 0          |   |
| Total   |                  |                    | 278                     |           | 10983      |   |
| Gross Square Feet =   | 142,459          | BTU/gsf =          | 77,095                  | \$/gsf =  | \$1.95     |   |
| VEHICLES/EQUIPMENT: Energy consumption reported through GSA.                        |                  |                    |                         |           |            |   |
|  |                  | NOV - 2 1998       |                         |           |            |   |
| Roger Carmichael, P.E.<br>Area Facilities Engineer                                  |                  | Date               |                         |           |            |   |
|  |                  | 11/2/98            |                         |           |            |   |
| Rod Gardner<br>Area Assoc Dir, DEHE   |                  | Date               |                         |           |            |   |
|   |                  |                    |                         |           |            | A |

|   |                  |                 |                 |
|---|------------------|-----------------|-----------------|
| <b>DEPARTMENT OF HEALTH &amp; HUMAN SERVICES</b>                                    |                  |                 |                 |
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| <b>APPENDIX B</b>   |                  |                 |                 |
| <b>ENERGY CONSERVATION PROGRAM SUMMARY</b>  |                  |                 |                 |
| I.H.S. Area:  | Tucson           | Reported Year:  | FY 1998         |
| Prepared by:  | Roger Carmichael | Title:          | Area Facil Engr |
| Phone:  | 520-295-2580     | Date Submitted: | 11/2/98         |
| <b>DIRECT AGENCY EXPENDITURES:</b>  |                  |                 |                 |
| Direct Expenditures on Facility Energy Efficiency Improvements                      |                  |                 |                 |
|   |                  | Current         | Next            |
|   |                  | Fiscal          | Fiscal          |
|   |                  | Year            | Year            |
| Annual Expenditures (Thous. \$)   |                  | 34.5            | 25              |
| Annual Savings Anticipated from Expenditures  |                  | 0.9 MBTU        | 1 (Thous \$)    |
| <b>ENERGY SAVINGS PERFORMANCE CONTRACTS:</b>  |                  |                 |                 |
| Number of ESP Contracts Awarded:  |                  | None            |                 |
| Annual Savings Anticipated from ESP Contracts:                                      |                  | 0 MMBTU         | 0 \$            |
| <b>UTILITY INCENTIVES:</b>  |                  |                 |                 |
| Incentives Received:  |                  | 0 \$            |                 |
| Funds Spent to Receive Incentives:  |                  | 0 \$            |                 |
| Annual Savings Anticipated from DSM Activities:                                     |                  | 0 MMBTU         | 0 \$            |
| <b>TRAINING:</b>  |                  |                 |                 |
| Current Year Expenditures for Energy Management Training:                           |                  | \$7,500         |                 |
| Number of Personnel Trained:  |                  | 8               |                 |
|  |                  | NOV - 2 1998    |                 |
| Roger Carmichael, P.E.<br>Area Facilities Engineer                                  |                  | Date            |                 |
|  |                  | 11/2/98         |                 |
| Rod Gardner<br>Area Assoc. Dir., DEHE   |                  | Date            |                 |
|   |                  |                 | B               |



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**APPENDIX B**

**ENERGY CONSERVATION PROGRAM SUMMARY**

|              |                  |                 |                 |
|--------------|------------------|-----------------|-----------------|
| I.H.S. Area: | Tucson           | Reported Year:  | FY 1998         |
| Prepared by: | Roger Carmichael | Title:          | Area Facil Engr |
| Phone:       | 520-295-2580     | Date Submitted: | 11/2/98         |

**DIRECT AGENCY EXPENDITURES:**

Direct Expenditures on Facility Energy Efficiency Improvements

|  | Current<br>Fiscal<br>Year | Next<br>Fiscal<br>Year |
|--|---------------------------|------------------------|
| Annual Expenditures (Thous. \$)              | 34.5                      | 25                     |
| Annual Savings Anticipated from Expenditures | 0.9 MBTU                  | 1 (Thous \$)           |

**ENERGY SAVINGS PERFORMANCE CONTRACTS:**

|  |         |      |
|--|---------|------|
| Number of ESP Contracts Awarded:               | None    |      |
| Annual Savings Anticipated from ESP Contracts: | 0 MMBTU | 0 \$ |

**UTILITY INCENTIVES:**

|   |         |      |
|---|---------|------|
| Incentives Received:                            | 0 \$    |      |
| Funds Spent to Receive Incentives:              | 0 \$    |      |
| Annual Savings Anticipated from DSM Activities: | 0 MMBTU | 0 \$ |

**TRAINING:**

|   |         |
|---|---------|
| Current Year Expenditures for Energy Management Training: | \$7,500 |
| Number of Personnel Trained:                              | 8       |

*R. Carmichael*

NOV - 2 1998

Roger Carmichael, P.E.  
Area Facilities Engineer

Date

*Rod Gardner*

11/2/98

Rod Gardner  
Area Assoc. Dir., DEHE

Date

